FP-1052 US



Docket No.: 0378-0374P "

(PATENT)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Takao MIYAZAKI

Application No.: 09/656,995 ^

Filed: September 7, 2000 '

For: IMAGE PICKUP APPARATUS FOR

PRODUCING A DESIRED FRAME OF

IMAGE SIGNALS

Confirmation No.: 2239

Art Unit: 2622

Examiner: L. T. Nguyen

### DECLARATION UNDER 37 C.F.R. §1.131

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

- 1. I, Takao Katori, am a Japanese patent attorney working at the patent firm of "T. Katori", which is Applicant's Japanese representative. I declare as follows:
- 2. I am aware of the pending U.S. Application No. 09/656,995 filed September 7, 2000. U.S. Application No. 09/656,995 claims priority to Japanese application 259867/1999, filed September 14, 1999. The pending claims are supported by Japanese application 259867/1999, filed September 14, 1999.
- 3. During prosecution of U.S. Application No. 09/656,995, the Examiner rejected claims 20-31 under 35 U.S.C. §103(a) as being unpatentable over Yumoto et al., US Patent 6,734,910 (hereinafter referred to as Yumoto) filed on August 26, 1999 in view of Taniguchi et

Application No. 09/656,995

Docket No.: 2091-0289P

al., US Patent 6,549,232. However, the present application was conceived and/or reduced to practice prior to the filing date August 26, 1999 of Yumoto.

- 4. As evidence of the above, I provide the following discussion:
- (i) I am a Japanese patent attorney working for the patent firm of T. Katori, a Japanese Patent firm working with Fuji Photo Film, Co., Ltd. (Fuji Film). Fuji Film is the owner of the present application and employs the inventor thereof. T. Katori worked to prepare and file the Japanese application 259867/1999 on September 14, 1999. To this end, the following will show that prior to August 26, 1999, the Japanese application 259867/1999 was complete and approved for filing in Japan.
- (ii) Prior to August 26, 1999, T. Katori received instructions from Fuji Film instructing T. Katori to proceed with the filing of the completed specification, claims, abstract and drawing with the Japanese Patent Office. The instructions were received prior to August 26, 1999 and T. Katori proceeded to prepare application without changes to the content thereof. Suitable papers were also prepared in order to file the application with the Japanese Patent Office. This filing occurred on September 14, 1999. Attached, as Appendix 1, is a copy of the invention disclosure (including drawing) from Fuji Film. Also attached are English translations thereof. The information contained within the disclosure and the drawings are sufficient to identify the application as that ultimately filed on September 14, 1999 and designated as Japanese application 259867/1999.
- (iii) I am the person at T. Katori with actual knowledge of the above events and am also the person in charge of the Japanese patent application 259867/1999.

Application No. 09/656,995

Docket No.: 2091-0289P

I hereby declare that all statements made herein of my own knowledge are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Pakao KATORI

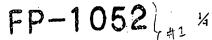
October 17, 2006

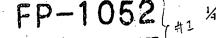
Attachment:

Invention disclosure and drawings prior to August 26, 1999 and English

translation.

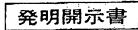
FP-1052 USP. 07





特許部 殿

413-2



\*1. 発明の名称

霽 子 カメう

\* 2. 発明の技術分野

わらかXラ、 わら写真撮影 BOX

作成省:職場 #70

\* 3 、 従来技術とその欠点 (他社特許、文献についてはコピー添付)

引用例	番号等	出願人等	備 考
0	特局平9-205605	キャーン	(FII)
2			SONY TAN- 200 FOR
3			
<b>(4)</b>			

**ポパール(本発明と従来技術との相違)** 

佐果Oのカメラ部 ヤコンピュータ

絶えず撮像塩墨からの最近の画像データを終っしてかかともりに

きと使し、レリースタイムラグの時間のだけ以前の画級を言う引する。

)レリー2、タイムラグは一定ではない(撮影者上1人ではない)ので不確字

・スが早すぎたとえた対応でまない

タイムマミンモード → 単左を連昇であり名大左記録容量を消費してしまう エリースッタイミング前後の西が外がSIとSZに応じてXモリーセルの、LCD

に表示工いた画像を撮影者が選択意でまする。

\* 4 発明が解決しようとする課題

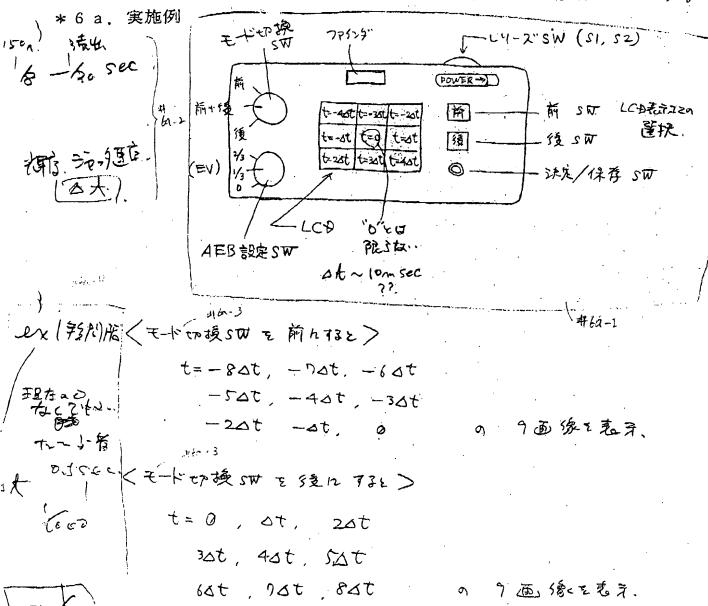
撮影者がほんてうに撮影したいと見った画像を記録できる 電子かとうも提供する。

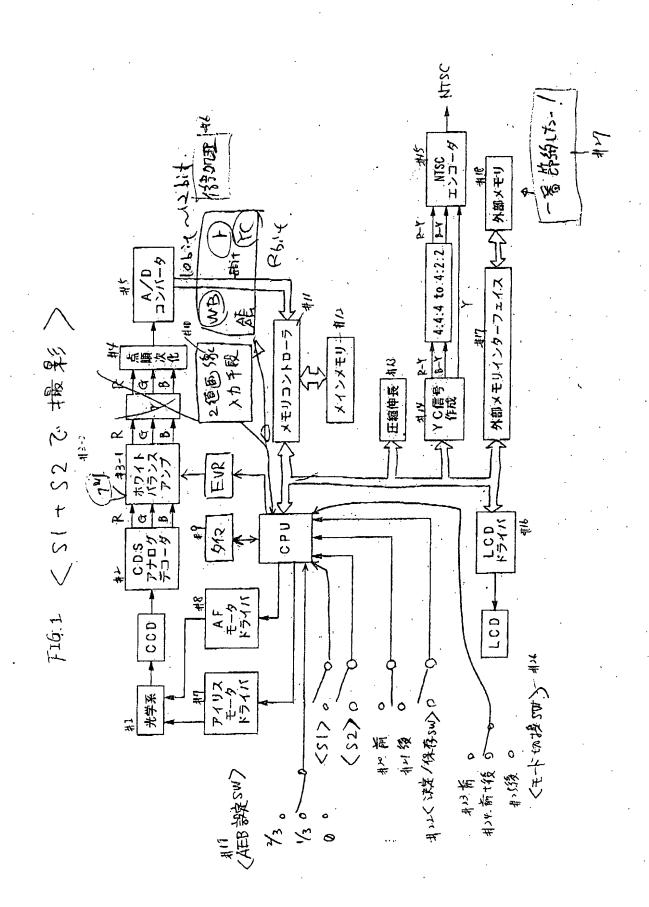
14-1 17510 PG 5 d

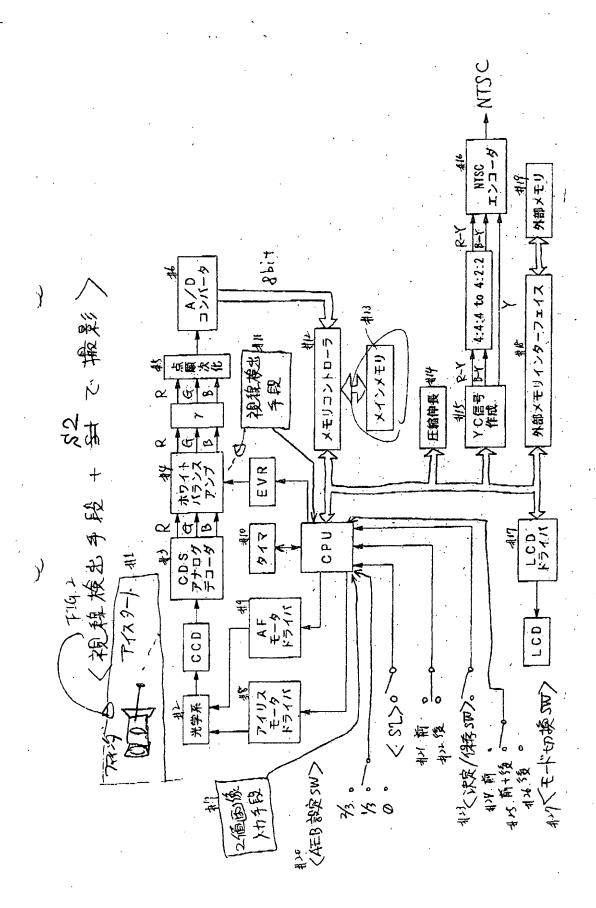
## \* 5. 課題を解決するための手段

SI MONで 撮像画纸を所定時間間隔で取込み開始。

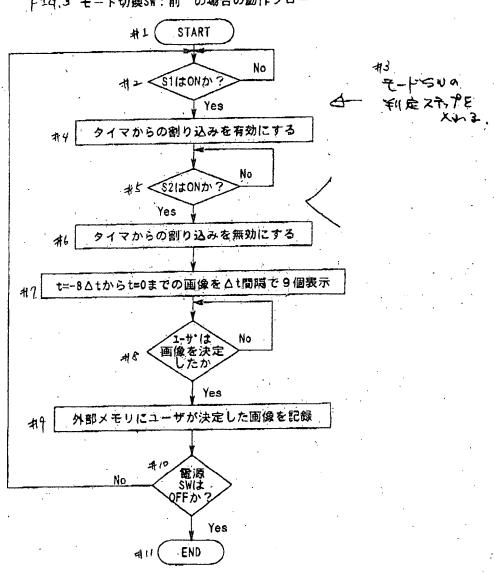
そ 恵元 塩色にも末に、壁状といた画像を保存な電子かメラ。



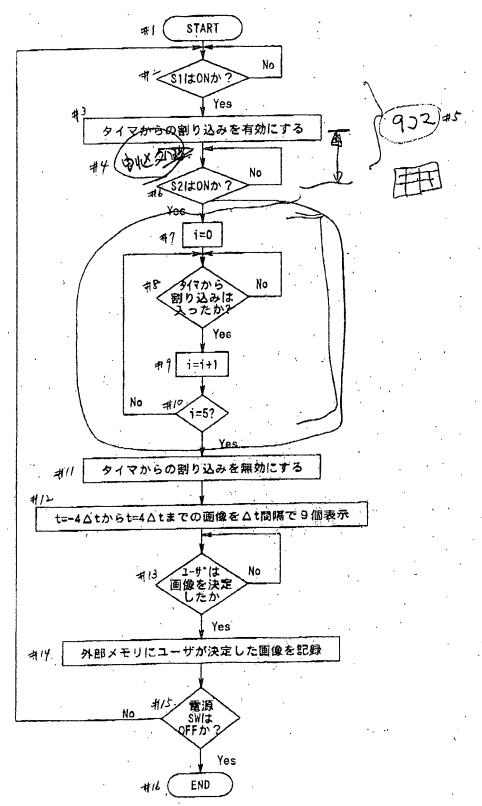




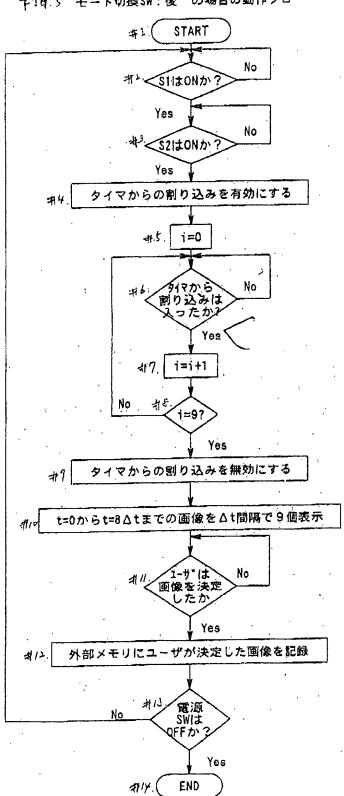
7-14、3 モード切換SW: 前 の場合の動作フロー



F19.4モードでか換5W:前+(愛の場合の動作70一

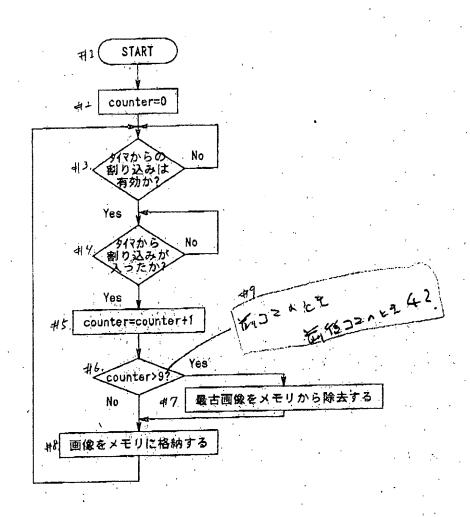


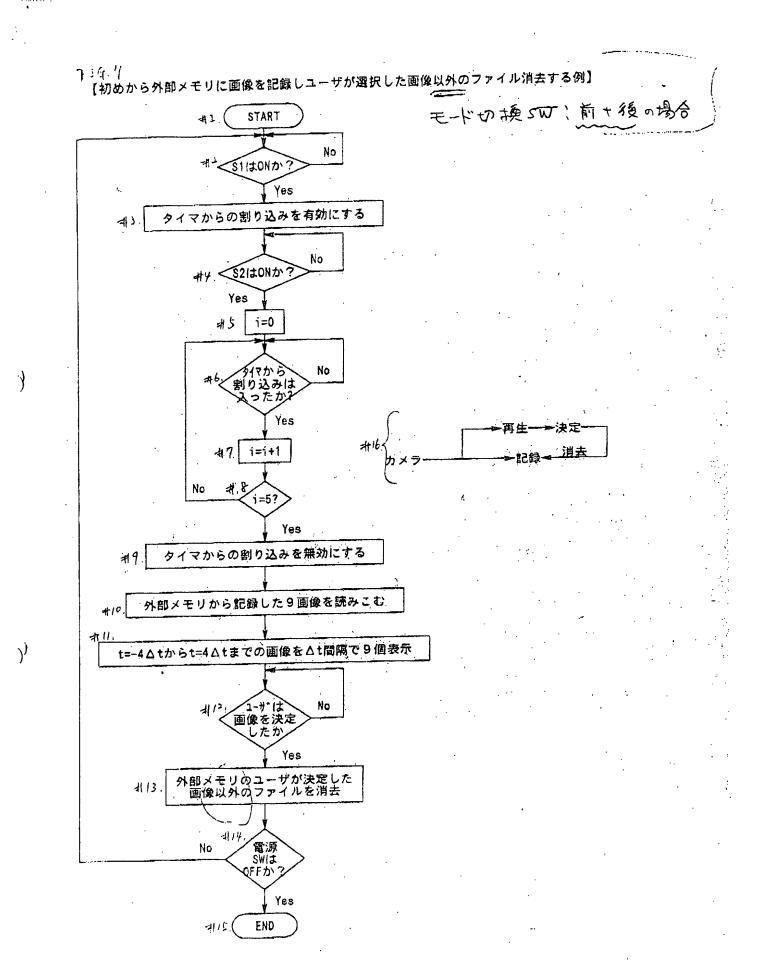
ア34.5 モード切換SW:後 の場合の動作フロー



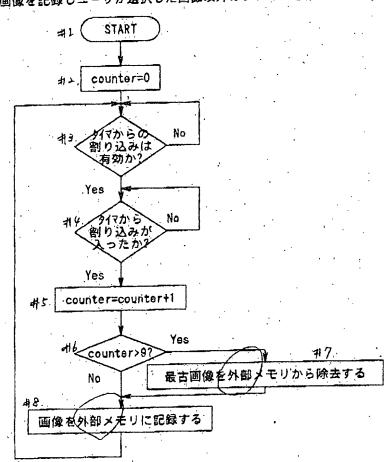
))

fia.5 くかくてからの専り込みが入った場をの処理>

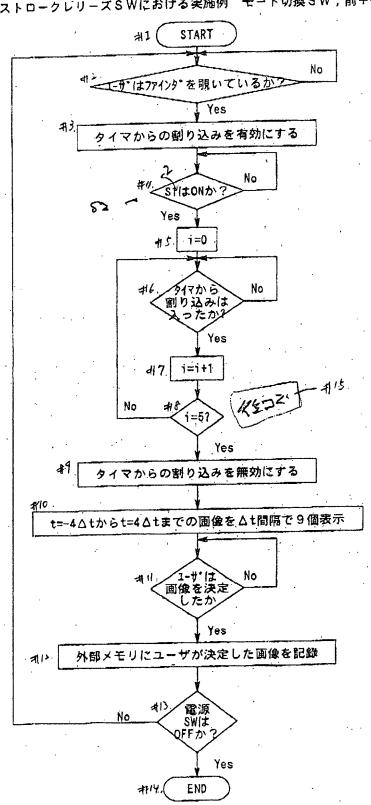




77日、8 <タイマからの割り込みが入った場合の処理> 【初めから外部メモリに画像を記録しユーザが選択した画像以外のファイルを消去する例】



〒: fr . ↑ 【ワンストロークレリーズSWにおける実施例 モード切換SW;前+後の場合】

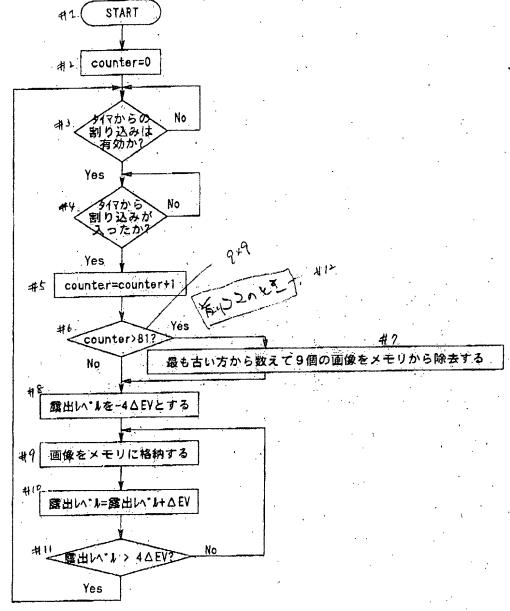


アーユG ! ○ 【AEBとの組合せ モード切換SW;前+後の場合】 START 料了 No S1はONか Yes タイマからの割り込みを有効にする 白体 No #1 SZIJOND Yes DL i=0 **45.** タイクトラ 割り込みは No ったが (POWER->) Yes 所 -25EV i=i+1 復 -dev ±0 EV TOEV +2∆⊑√ +3MEV No 418 Yes でなくてもよい タイマからの割り込みを無効にする #17 タイミング  $t=-4\Delta t$ から $t=4\Delta t$ までの画像を $\Delta t$ 間隔で9個表示 #18 1-サ゚は
画像を決定 No 1111 したか *y* Yes 医虫 -4ΔEVまでの画像をΔEV間隔で9個表示 は出いまして4 △ EVか りりをなる 露出いしを決定 No 413 Yes 外部メモリにユーザが決定した画像を記録 7114 電源 SWは No

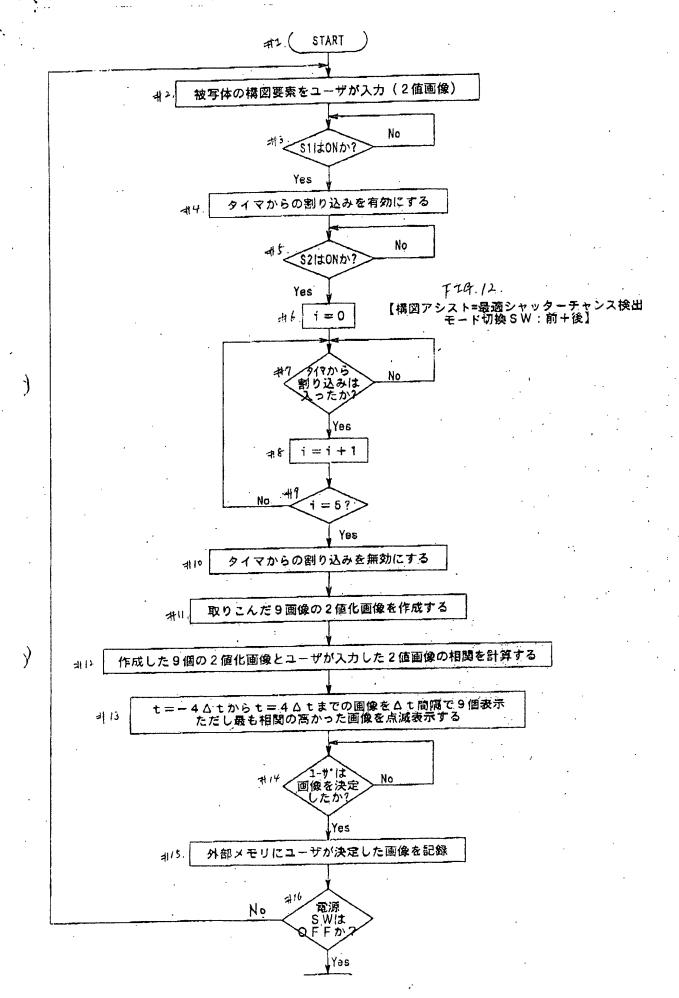
+16/

FND

「AEBとの組合せ タイマから割り込みが入った場合の処理】 A1 START

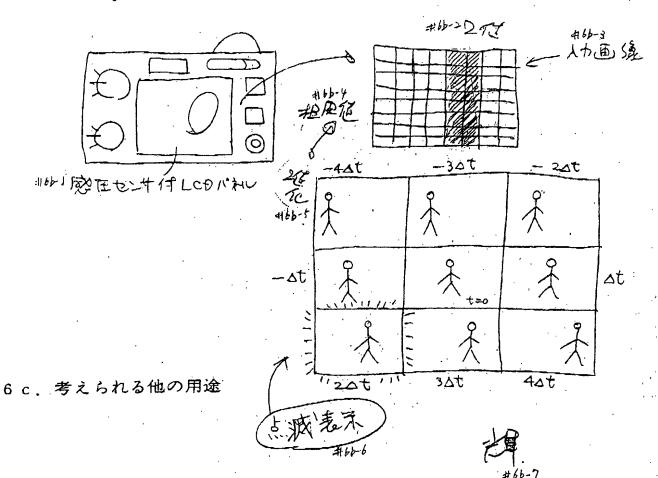


()



6 b. その他の実施例

(構図アシスト用2個画像のユーザー入力)



\* 7 a. 発明の効果

撮影者がほんとうに撮影したいと思った。タイミングの画像を記録していまる。

1/4

7 c. 実施例に特有の効果

8 a 特許請求の範囲

8 b. 特許請求の範囲を規定する各技術的手段に関する段階的記載

9. 図面の簡単な説明

特許請求の範囲(案)

<u>|の画度</u>を2値化した画像との相関を求め、 | るカメラ。 |使用した1.から8.記載のカメラ。

#1. FP-1052 01-2135

#2. To Patent Department

#3. DISCLOSURE OF THE INVENTION

#4. received on
The Patent Firm
of T.Katori

#5.

#6. Prepared by: Division, Name
Development Dept.
Takao Miyazaki
TEL: 048-468-2375

- #7. revised version revised at the meeting
  Make addition of the features about
  the shooting under low light condition
- \*1. Title of the Invention
  DIGITAL STILL CAMERA
- \*2. Field of the Invention

  DS camera, DS photo-shoot booth
- \*3. Conventional Art and its drawbacks
  (any copies of competitors' patent documents
  and literatures are attached)

Refs.	No.	Applicant	Remarks
1.	JP 205605/1997A	Canon	et seq.
2.			SONY Cyber-shot et seq.

#3-1. Differences Between the Present Invention and Conventional Arts

#### #3-2. Conventional Arts:

1. Camera section and computer

Several frames of latest image data output from an image pickup apparatus are constantly stored in memory, and the image data generated before a period of release time lag are recorded.

#### Drawbacks:

 The recorded data are not assuredly a desired one, because the release time lag is not constant (and there are several people who operate the apparatus).

#3-2-1, it depends on the person to operate it

- If release is made too quickly, the image data will not recorded.
- 2. Time machine mode

This mode simply picks up pictures continuously, so that the large amount of memory is wasted.

#3-2-2. just picking up every picture

#### #3-3. Present Invention

Frames picked up before and after release timing are stored according to S1 and S2 switches selected to take pictures. Then, the pictures displayed on an LCD are selectively recorded.

\*4. Problems to be solved by the Invention

Provide a digital still camera capable of recording pictures which are picked up at a desired timing.

#4-1. not only one frame at a time

\*5. Means for solving the problem

A digital camera for:

when S1 is ON, picking up shot images at preselected intervals ( $\Delta t$ ); and

when 52 is ON, displaying the shot images on a display unit and storing selected images.

The displayed images are:

current image (t=0)

images before S2

 $t=-\Delta t$   $t=-3\Delta t$ 

 $t=-2\Delta t$   $t=-4\Delta t$ 

t=0

images after S2

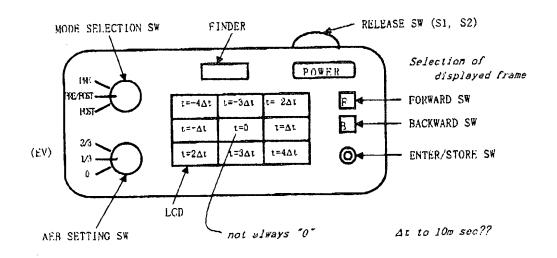
 $t=\Delta t$   $t=3\Delta t$ 

 $t=2\Delta t$   $t=4\Delta t$ 

At

### \*6a. Embodiments

#6a-1.



#6a-2.

to 150 readout: 1/8 - 1/30 sec.
brightness shutter speed

#6a-3.

[mode selection SW is at the "Pre" position]  $t=-8\Delta t, -7\Delta t, -6\Delta t$   $-5\Delta t, -4\Delta t, -3\Delta t$   $-2\Delta t, -\Delta t, 0$ 

9 pictures picked up at the above times are displayed

[mode selection SW is at the "Post" position]

t=0,  $\Delta t$ ,  $2\Delta t$ 

 $3\Delta t$ ,  $4\Delta t$ ,  $5\Delta t$ 

6Δt, 7Δt, 8Δt

9 pictures picked up at the above times are displayed

#6a-4. e.g.  $\Delta r$  is 1 sec.

present "0" does not always have to be displayed very earlier numbers of  $\Lambda$  are available

0.5 sec. to 1/1000 in a TV 1/30

## FIG. 1: Picking up images in S1 and S2 modes

- #1. OPTICS
- #2. CDS ANALOG DECODER
- #3-1. WHITE BALANCE AMPLIFIER
- #3-2. PRE
- #4. DOT SEQUENCER
- #5. A/D CONVERTER
  - #6. signals are converted to 10 20 bits image data
- #7. IRIS MOTOR DRIVER
- #8. AF MOTOR DRIVER
- #9. TIMER
- #10. BILEVEL PICTURE INPUT MEANS
- #11. MEMORY CONTROLLER
- #12. MAIN MEMORY
- #13. COMPRESSION/EXPANSION CIRCUIT
- #14. YC PROCESSOR
- #15. NTSC ENCODER
- #16. LCD DRIVER
- #17. EXTERNAL MEMORY INTERFACE
- **#18. EXTERNAL MEMORY**
- #19. AEB SETTING SW
- #20. PRE
- #21. POST
- #22. ENTER/STORE SW
- #23. PRE
- #24. PRE/POST
- #25. POST
- #26. MODE SELECTION SW
- #27. want to save this memory most

FAX NO. 7032058050

## FIG. 2: Picking up images using eye tracking means in S2 mode #1. Finder ----- Eye Start

- #2. OPTICS
- #3. CDS ANALOG DECODER
- #4. WHITE BALANCE AMPLIFIER
- #5. DOT SEQUENCER
- #6. A/D CONVERTER
- #7. BILEVEL PICTURE INPUT MEANS
- #8. IRIS MOTOR DRIVER
- #9. AF MOTOR DRIVER
- #10. TIMER
- #11. EYE TRACKING MEANS
- #12. MEMORY CONTROLLER
- #13. MAIN MEMORY
- #14. COMPRESSION/EXPANSION CIRCUIT
- #15. YC PROCESSOR
- #16. NTSC ENCODER
- #17. LCD DRIVER
- #18. EXTERNAL MEMORY INTERFACE
- #19. EXTERNAL MEMORY
- #20. AEB SETTING SW
- #21. PRE
- #22. POST
- #23. ENTER/STORE SW
- #24. PRE
- #25. PRE/POST
- #26. POST
- #27. MODE SELECTION SW

- FIG. 3: Flow of procedure when mode selection SW is set at "Pre" position
- #1. START
- #2. SWITCH S1 ON?
- #3. add a step of determining the position of mode switch
- #4. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #5. SWITCH S2 ON?
- #6. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #7. DISPLAY 9 PICTURES PICKED UP AT  $t=-8\Delta t$ TO t=0 AT THE INTERVALS OF  $\Delta t$
- #8. USER SELECTED PICTURE?
- #9. RECORD PICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #10. POWER SWITCH OFF?
- #11. END

- FIG. 4: Flow of procedure when mode selection SW is set at "Pre/Post" position
- #1. START
- #2. SWITCH S1 ON?
- #3. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #4. INTERRUPT PROCESSING
- #5. 9 frames
- #6. SWITCH S2 ON?
- #7. i=0
- #8. INTERRUPT FROM TIMER DETECTED?
- #9. i=i+l
- #10. i=5?
- #11. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #12. DISPLAY 9 PICTURES PICKED UP AT  $t=-4\Delta t$ TO  $t=4\Delta t$  AT THE INTERVALS OF  $\Delta t$
- #13. USER SELECTED PICTURE?
- #14. RECORD PICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #15. POWER SWITCH OFF?
- #16. END

- FIG. 5: Flow of procedure when mode selection SW is set at "Post" position
- #1. START
- #2. SWITCH S1 ON?
- #3. SWITCH S2 ON?
- #4. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #5. i≃0
- #6. INTERRUPT FROM TIMER DETECTED?
- #7. i=i+1
- #8. i=9?
- #9. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #10. DISPLAY 9 PICTURES PICKED UP AT t=0 t=8 $\Delta$ t AT THE INTERVALS OF  $\Delta$ t
- #11. USER SELECTED PICTURE?
- #12. RECORD PICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #13. POWER SWITCH OFF?
- #14. END

## FIG. 6: Processing when timer interrupts

- #1. START
- #2. COUNTER=0

OCT-11-2006 WED 06:44 PM BSKB

- #3. ACCEPTANCE OF INTERRUPT FROM TIMER VALID?
- #4. INTERRUPT FROM TIMER DETECTED?
- #5. COUNTER=COUNTER+1
  - #9. as for the frames which are picked up
    in the "Pre" mode position
    if the frames are picked up in the "Pre/Post" mode,
    is it 4?
- #6. COUNTER>9?
- #7. DELETE OLDEST PICTURE PRESENT IN MEMORY
- #8. STORE PICTURE IN MEMORY

FIG. 7: [Example for deleting files other than pictures that user selected from prestored pictures in external memory]

Mode selection SW: "Pre/Post"

- #1. START
- #2. SWITCH S1 ON?
- #3. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #4. SWITCH S2 ON?
- #5. i=0
- #6. INTERRUPT FROM TIMER DETECTED?
- #7. i=i+1
- #8. i=5?
- #9. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #10. READ 9 PICTURES FROM EXTERNAL MEMORY
- #11. DISPLAY 9 PICTURES PICKED UP AT t=-4 $\Delta$ t to t=4 $\Delta$ t at the intervals of  $\Delta$ t
- #12. USER SELECTED PICTURE?
- #13. DELETE FILES OTHER THAN PICTURES SELECTED
  BY USER IN EXTERNAL MEMORY
- #14. POWER SWITCH OFF?
- #15. END

reproduce → determine

#16. Camera \( \alpha \) record \( \to \) delete

FIG. 8: Processing when timer interrupts

[Example for deleting files other than pictures that user selected from prestored pictures in external memory]

- #1. START
- #2. COUNTER=0
- #3. ACCEPTANCE OF INTERRUPT FROM TIMER VALID?
- #4. INTERRUPT FROM TIMER DETECTED?
- #5. COUNTER=COUNTER+1
- #6. COUNTER>9?
- #7. DELETE OLDEST PICTURE PRESENT IN EXTERNAL MEMORY
- #8. STORE PICTURE IN EXTERNAL MEMORY

- FIG. 9: [Embodiment using one-stroke release SW] Mode selection SW: "Pre/Post"
- #1. START
- #2. USER LOOKING INTO FINDER?
- #3. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #4. SWITCH S1 ON? ..... correct "S1" to --S2--
- #5. i=0
- #6. INTERRUPT FROM TIMER DETECTED?
- #7. i=i+1
- #8. i=5?
  - #15. frames picked up after the turn on of the switch 52
- #9. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #10. DISPLAY 9 PICTURES PICKED UP AT t=-4 $\Delta$ t TO t=4 $\Delta$ t AT THE INTERVALS OF  $\Delta$ t
- #11. USER SELECTED PICTURE?
- #12. RECORD PICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #13. POWER SWITCH OFF?
- #14. END

## FIG. 10: [In combination with AEB] Mode selection SW: "Pre/Post"

- #1. START
- #2. SWITCH S1 ON?
- #3. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #4. SWITCH S2 ON?
- #5. i=0
- #6. INTERRUPT FROM TIMER DETECTED?
- #7. i=i+1
- \$8. i=5?
- #9. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #10. DISPLAY 9 PICTURES PICKED UP AT  $t=-4\Delta t$ TO  $t=4\Delta t$  AT THE INTERVALS OF  $\Delta t$
- #11. USER SELECTED PICTURE?
- #12. DISPLAY 9 PICTURES PICKED UP AT EXPOSURE LEVEL  $-4\Delta$ EV TO  $4\Delta$ EV AT THE INTERVALS OF  $\Delta$ EV
- #13. USER SELECTED EXPOSURE LEVEL?
- #14. RECORD FICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #15. POWER SWITCH OFF?
- #16. END
- #17. no need to be "0"
- #18. select in the order of "timing" to "exposure"

# FIG. 11: [In combination with AEB: Processing when timer interrupts]

- #1. START
- #2. COUNTER=0
- #3. ACCEPTANCE OF INTERRUPT FROM TIMER VALID?
- #4. INTERRUPT FROM TIMER DETECTED?
- #5. COUNTER=COUNTER+1
- #6. COUNTER>81?
- #12. frames picked up after the turn on of the switch S2
- #7. DELETE OLDEST 9 PICTURES PRESENT IN MEMORY
- #8. SET EXPOSURE LEVEL TO  $-4\Delta EV$
- #9. STORE PICTURE IN MEMORY
- #10. EXPOSURE LEVEL-EXPOSURE LEVEL+ΔEV
- #11. EXPOSURE LEVEL>4AEV?

FIG. 12: [Composition Assistance - Best photo opportunity detection]

Mode selection SW: "Pre/Post"

- #1. START
- #2. INPUT COMPOSITION FACTOR (BILEVEL PICTURE) OF SUBJECT
- #3. SWITCH S1 ON?
- #4. VALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #5. SWITCH S2 ON?
- #6. i ±0
- #7. INTERRUPT FROM TIMER DETECTED?
- #8. i=i+1
- #9. i = 5?
- #10. INVALIDATE ACCEPTANCE OF INTERRUPT FROM TIMER
- #11. GENERATE BILEVEL PICTURES OF 9 PICTURES PICKED
- #12. DETERMINE CORRELATION BETWEEN 9 GENERATED BILEVEL PICTURES AND BILEVEL PICTURES USER INPUT
- #13. DISPLAY 9 PICTURES PICKED UP AT  $t=-4\Delta t$  TO  $t=4\Delta t$  AT THE INTERVALS OF  $\Delta t$  AND CAUSE PICTURE WITH GREATEST CORRELATION TO BLINK
- #14. USER SELECTED PICTURE?
- #15. RECORD PICTURE SELECTED BY USER IN EXTERNAL MEMORY
- #16. POWER SWITCH OFF?
- #17. END

6b. Other Embodiment(s)
 [User input of bilevel pictures for
 composition assistance mode]

#6b-1. LCD panel having pressure sensitive sensor

#6b-2. bilevel

#6b-3. input pictures

#6b-4. correlation value

#6b-5. generate bilevel pictures

#6b-6. accentuate by blinking

#6b-7. brightness

6c. Other Applicability

\*7a. Effect of the Invention

Pictures that are picked up at a desired (shot) timing can be recorded.

7b. Unanticipated Effect of the Invention

7c. Specific Effect of the Invention

8a. Claims

8b. Step-by-step Explanation in relation to the Technical Means for defining Claims

9. Brief Description of the Drawings

## Claims (draft):

- 1. A camera for picking up a scene by turning on release switches S1 and S2 in combination, wherein an operator of the camera can selectively execute continuous shoot modes at "Pre", "Pre/Post" or "Post" release timing of the switch S2.
- 2. The camera in accordance with claim 1, wherein pictures selected by the operator from the pictures continuously shot are recorded in an external memory.
  - \*#10-1. the number of the picture to select is not limited to one
- 3. The camera in accordance with claim 1, wherein pictures selected by the operator from the pictures continuously shot are held in the external memory and the rest of the pictures are deleted.
- 4. The camera in accordance with claim 1, wherein a correlation is determined between bilevel pictures input by the operator and other bilevel pictures generated from the continuously shot pictures, by which the picture having the highest degree of correlation is displayed distinguishably from the other displayed pictures.
- 5. The camera in accordance with claim 1, wherein exposure level is varied in steps at each release timing.
- 6. The camera in accordance with claim 5, wherein pictures selected by the operator from the pictures continuously shot are recorded in the external memory.
- 7. The camera in accordance with claim 5, wherein pictures selected by the operator from the pictures continuously shot

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are held in the external memory and the rest of the pictures are deleted.

- 8. The camera in accordance with claim 5, wherein a correlation is determined between bilevel pictures input by the operator and other bilevel pictures generated from the continuously shot pictures, by which the picture having the highest degree of correlation is displayed distinguishably from the other displayed pictures.
- 9. The camera in accordance with claims 1 to 8, wherein an eye sensor is provided to a finder instead of applying the S1 mode to the release switch.